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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,777	07/13/2001	Thomas Schaefer	205328US0	1474

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT	PAPER NUMBER
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1754

8

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,777

Applicant(s)

SCHAEFER ET AL

Examiner

Maribel Medina

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-6, 8 is/are rejected.
- 7) ☐ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

1. The indicated allowability of the subject matter of canceled claim 7, which has been incorporated into amended claim 1, has been withdrawn in view of new grounds for rejection. See the following rejection.

Drawings

2. The drawings are objected to because: The identifier "Fig. 1" should be deleted. See 37 CFR 1.84 (u) (1) *"Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." Must not appear."* Correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 3,379,500 (Albanese et al).

Albanese et al discloses a process for the synthesis of hydrogen cyanide comprising reacting ammonia, methane, nitrogen and oxygen in the presence of nets of catalysts selected from the group consisting of metals of the platinum group and alloys thereof (See col. 1, lines 14-21). The oxygen and nitrogen are present in molar ratio which satisfies the relationship

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$[O_2]/[N_2+O_2] > 0.21$ up to 0.40 (See col. 2, lines 40-45). Methane and ammonia are present in a molar ratio of $[CH_4]/[NH_3]$ from 1.4 to 1.05 (See col. 2, lines 50-55).

In regards to the limitation of claim 1 that reads “ wherein said methane-containing natural gas contains at least 88 vol.% of methane” Albanese et al clearly discloses in col. 5, lines 1-3, that “gaseous mixtures containing at least 90% of CH_4 , in particular natural gas” can be used.

The only difference between the instantly claimed invention and Albanese et al is that Albanese et al fail to disclose that a “molar ratio of ammonia to the sum of oxygen and nitrogen obeys the following relationship: $Y = m \cdot X - a$ wherein: $Y = [NH_3]/[N_2+O_2]$; $X = [O_2]/[N_2+O_2]$; $m = 1.25$ to 1.40; and $a = 0.05$ to 0.14.”

Albanese discloses in cols. 3 and 4 in the table various points which fall in the instantly claimed range, therefore if one of ordinary skill in the art sets substitutes the various points set in the examples of Albanese et al in the claimed relationship, the values of m and a will inherently be within the instantly claimed range. For example for Albanese et al example point 4, wherein $X = [O_2]/[N_2+O_2] = 0.30$ and $Y = [NH_3]/[N_2+O_2] = 0.25$ and setting the m value to 1.25, the a will be 0.133 which falls in the instantly claimed range, the same can be applied for the range of instant claim 4, by selecting the point $X = [O_2]/[N_2+O_2] = 0.40$ and $Y = [NH_3]/[N_2+O_2] = 0.44$ and setting the m value to 1.33 then a will be 0.08.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined by experimentation and mathematical methods the relationship between the concentrations of ammonia and oxygen as instantly claimed since this a very common and known method of comparison used widely in the art.

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In regards to claim 5, Albanese et al disclose in col. 4, lines 40-44, that the feeding gas is preheated to 110°C. In regards to claim 6, Albanese disclose that ammonia and methane are controlled as a function of $[O_2]/[N_2+O_2]$ (See col. 3, lines 35-40).

In regards to claim 8 Albanese fail to disclose the use of an Andrussov reactor, However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an Andrussov reactor since this a well known type of reactor used in the production of hydrogen cyanide from, methane, ammonia and oxygen-containing gaseous streams.


Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Claim 3 disclose allowable subject matter. The prior art fail to disclose or suggest that molar ratio of methane to ammonia = 0.98 to 1.02.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner Maribel Medina. The examiner can normally be reached on Monday through Friday from 8:00AM to 4:00 PM. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Examiner: Maribel Medina **Tel: 703-305-1928****Fax: 703-872-9310****April 11, 2003**
**STEVEN BOS
PRIMARY EXAMINER
GROUP 1100**